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App. Ser. No.: 09/819,167

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the amendments above and the following remarks. Claims 1-21 remain pending in the present application, of which Claims 1 and 11 are independent. Claims 1, 3, 8, 9, 11 and 14 have been amended. No new matter has been introduced by way of the amendments and entry thereof is respectfully requested.

Drawings

The Official Action does not indicate whether the drawing filed on March 27, 2001 is approved. Applicant respectfully requests approval of the original filed drawing. New Figures 2A, 2B, 3A, 3B, 4A and 4B have been added to show the diagrams removed from pages 6 and 8 of the specification.

Information Disclosure Statement

The acknowledgement of the documents cited in the Information Disclosure Statement filed on September 18, 2002 is noted with appreciation.

Specification

The disclosure was objected to because of the diagrams shown on pages 6 and 8 of the disclosure. As required by the Official Action, these diagrams have been removed from the disclosure. In addition, separate Figures 2A, 2B, 3A, 3B, 4A and 4B have been added to show these diagrams. The specification has also been amended accordingly to refer to Figures 2A, 2B, 3A, 3B, 4A and 4B. No new matter has been introduced by the amendment to the specification and entry thereof is respectfully requested.

Claim Rejection under 35 U.S.C. §112, second paragraph

The Official Action sets forth a rejection of Claims 1-21 as allegedly being indefinite under 35 U.S.C. §112, second paragraph, for reciting the feature "applying metric criteria against the statistical metrics by adjusting print density." Claims 1 and 11 have been amended to correct a typographical error and are therefore in better compliance with the provisions of 35 U.S.C. §112, second paragraph. Withdrawal of the rejection is respectfully requested.

Claim Rejection under 35 U.S.C. §103

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

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Rejection of Claims 1-6 and 11-17 under 35 U.S.C. § 103(a)

The Official Action sets forth a rejection of Claims 1-6 and 11-17 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the disclosure contained in U.S. Patent No. 5,144,566 to Anderson et al. in view of the disclosure contained in U.S. Patent No. 6,771,815 to Yang et al. This rejection is respectfully traversed because Anderson et al. in view of Yang et al. fail to teach or suggest the invention as set forth in independent Claims 1 and 11, upon which Claims 2-6 and 12-17 depend.

Anderson et al. discloses a print inspection method in which an area of printed material is optically scanned to obtain image data representing picture elements having variable intensity levels. (Abstract) Anderson et al. also discloses counting the number of picture elements at a particular intensity level in the area scanned to generate a frequency distribution of the intensity level of the image data (Abstract; Figure 1). In addition, Anderson et al. discloses that an area of printed material is optically scanned to obtain image data representing picture elements having variable intensity levels (column 1, lines 43-47). However, Anderson et al. fails to teach or suggest all the features of independent Claims 1 and 11, and Claims 2-6 and 12-17 which depend from Claims 1 and 11, respectively.

With regard to independent Claim 1, Anderson et al. fails to teach or suggest at least "applying metric criteria against the statistical metrics and adjusting print density based upon the application of the metric criteria against the statistical metrics" as recited in independent Claim 1. With regard to independent Claim 11, Anderson et al. also fails to teach or suggest at least "a processor, connected to the sensor, for calculating statistical metrics of histograms of the pixel values, applying metric criteria against the statistical metrics, and adjusting print density based upon the application of the metric criteria." Instead, Anderson et al. discloses a reject signal or alarm to indicate unsatisfactory ink density levels (column 4, lines 9-19).

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Anderson et al. fails to teach or suggest that the reject signal or alarm is used for adjusting print density based on the application of metric criteria, as recited in independent Claims 1 and 11.

In fact, the Official Action correctly notes that "Anderson et al. do not disclose adjusting print density in response to the applying step [the application of metric criteria]" (Official Action, page 3). However, the Official Action incorrectly concludes that the adjustment of print density is well known in the art (Official Action, page 4). The reliance on this cited passage to somehow conclude that the adjustment of print density is well known in the art is improper. Anderson et al. fails to teach or suggest that the disclosed reject signal or alarm provides an adjustment of print density based on the application of metric criteria. The Official Action provides no specific grounds for concluding why the adjustment of print density would have been well known in the art at the time of filing of the instant application. Thus, Anderson et al. fails to teach or suggest all the features of independent Claims 1 and 11, and Claims 2-6 and 12-17 which depend from Claims 1 and 11, respectively.

Yang et al. fails to remedy the deficiencies of Anderson et al.

The Official Action notes that Yang et al. discloses an image correction apparatus, wherein a histogram is prepared by calculating a pixel number ratio corresponding to each gradation of the histogram (Abstract). The Official Action also notes that Yang et al. discloses that the histogram gradation width is corrected, based on a comparison of a threshold value for a pixel number ratio, corresponding to a given gradation that is determined through user specification, against the pixel number ratio corresponding to each gradation in the histogram. (Abstract) The Official Action, however, incorrectly concludes that lines 13-18 of column 6 disclose that correction of the histogram gradation width corresponds to adjustment of print density. Instead, the cited passage discusses that a series

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of gradations, with the integrated value of their pixel number ratios not having reached a threshold value, is compressed to a single gradation. The cited passage does not pertain to the adjustment of print density in response to applying metric criteria, as claimed in Claims 1 and 11. Thus, the reliance on this cited passage to somehow conclude that a prima facie case of obviousness has been achieved is improper.

The compression method disclosed by Yang et al. does not involve any printing on a medium, or any adjustment of print density. Instead, the compression method and the correction of histogram gradation width disclosed by Yang et al. involves calculation of a pixel number ratio corresponding to each gradation of a histogram, activation of a computerized image correction program, and correction of histogram gradation width by a compression method (Abstract; Column 4, lines 20-65). Yang et al. fails to teach or suggest that the compression method or the image correction program perform an adjustment of print density based on metric criteria. Yang et al. therefore fails to teach or suggest adjusting print density by application of metric criteria, as set forth in independent Claims 1 and 11.

For at least the reasons set forth above, Anderson et al. in view of Yang et al. fail to teach or suggest all the features of independent Claims 1 and 11, and Claims 2-6 and 12-17 which depend from Claims 1 and 11, respectively.

With regard to the rejection of Claims 2 and 12, the Official Action incorrectly notes that the passage recited in lines 10-13 of column 2 of Anderson et al. discloses that a printer prints with dots at a particular level of ink. Instead, this cited passage discusses that the method for print inspection disclosed by Anderson et al. monitors ink density levels of newsprint by generating a histogram. Anderson et al. discloses providing an optical scanner to scan an area of printed material. Anderson et al. also discloses image data acquisition, and the use of an impression cylinder (Column 2, lines 30-40). However, Anderson et al. fails to

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teach or suggest that a printer prints with dots, as recited in Claims 2 and 12. Yang et al. also fails to teach or suggest that a printer prints with dots.

With regard to the rejection of Claims 3 and 14, the Official Action incorrectly notes that the passage recited in lines 1-3 of column 4 of Anderson et al. discloses stealthy dots. As described in the original filed specification for the instant application, "Stealthy dots are dots purposefully printed in regions of a medium where no final content is directed." Instead of disclosing stealthy dots, the cited passage of Anderson et al. discusses a defect monitoring function 52 which serves to examine printed material for ink spots, wrinkles, holes or other localized defects on individual pages. Anderson et al. fails to teach or suggest that ink spots, wrinkles, holes or other localized defects constitute dots that are purposefully printed. Thus, Anderson et al. fails to teach or suggest the features of Claims 3 and 14. Yang et al. also fails to teach or suggest stealthy dots, and thus fails to remedy the deficiencies of Anderson et al.

With regard to the rejection of Claims 4 and 15, the Official Action incorrectly concludes that lines 19-65 of column 6 of Yang et al. discloses shifting and scaling. The original filed specification for the instant application discloses that measurements of image densities of light and dark areas may be shifted and scaled, or normalized, into a predetermined range for use by a print engine. Measurements of image densities may be shifted and normalized into a 100 point scale from zero to 99. Scaled measurements of image density may be used to determine the correct number densities at which to print dots. Yang et al. fails to teach or suggest adjusting print density by shifting and scaling of pixel values. Instead, the cited passage discusses correction processing by a method of gradation compression. The gradation compression of Yang et al. does not involve shifting and scaling of pixel values. Anderson et al. also fails to teach or suggest wherein pixel values are shifted and scaled, and thus Anderson et al. fails to remedy the deficiencies of Yang et al.

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With regard to the rejection of Claims 5 and 16, the Official Action correctly notes that neither Anderson et al. or Yang et al. disclose printing and collection of pixel values which are performed substantially simultaneously. Anderson et al. and Yang et al. each fail to teach or suggest that collection of pixel values by a sensor operates substantially simultaneously with a printing operation. In addition, the Official Action incorrectly concludes that simultaneous printing and collection of printed data would have nonetheless been obvious for one of ordinary skill in the art. The Official Action provides no basis, other than a general allegation, for incorrectly concluding that Claims 5 and 16 would have been obvious in view of the disclosure of Anderson et al. and Yang et al.

In addition, the Official Action incorrectly concludes that Anderson et al. in view of Yang et al. renders Claims 6 and 17 obvious. Anderson et al. in view of Yang et al. fail to teach or suggest adjusting print density based on the application of metric criteria as recited in claims 6 and 17, wherein the metric criteria comprises comparing an optical density of an area of a printed medium against a predetermined optical density. In addition, and at least for the reasons set forth above, Anderson et al. and Yang et al. fail to teach the features of allowable independent Claims 1 and 11, upon which Claims 6 and 17 respectively depend. For at least these reasons, and at least by virtue of their dependencies on allowable independent Claims 1 and 11, respectively, Anderson et al. in view of Yang et al. fail to teach or suggest all the features of Claims 6 and 17.

For at least the reasons above, Anderson et al. in view of Yang et al. fail to teach or suggest all the features of Claims 1-6 and 11-17, and thus Claims 1-6 and 11-17 are allowable over Anderson et al. in view of Yang et al. The Examiner is, therefore, respectfully requested to withdraw the rejections of Claims 1-6 and 11-17 and to allow these claims.

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Rejection of Claims 7, 8, 10, 18, 19 and 21 under 35 U.S.C. § 103(a)

The Official Action also sets forth a rejection of Claims 7, 8, 10, 18, 19 and 21 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the disclosure contained in Anderson et al. in view of Yang et al. as applied to Claims 1 and 11, and further in view of the disclosure contained in U.S. Publication US 2001/0036314 A1 to Yamaguchi et al. This rejection is respectfully traversed because Anderson et al. in view of Yang et al., and further in view of Yamaguchi et al., fail to teach or suggest the invention set forth in Claims 7, 8, 10, 18, 19 and 21.

At least for the reasons set forth above, Anderson et al. in view of Yang et al. fail to teach or suggest all of the features of allowable independent Claims 1 and 11.

With regard to the rejection of Claims 7, 8 and 10, the Official Action correctly notes that Anderson et al. in view of Yang et al. fail to teach or suggest a method comprising adjusting print density wherein the applied metric criterion is bimodal symmetry, or wherein the metric criterion is relative height of a dark modal peak to that of a light modal peak to determine degree of adjustment of the print density. The Official Action also notes that paragraph [0053] of Yamaguchi et al. discloses a 50:50 ratio of detected black and white peak values. However, Yamaguchi et al. fails to teach or suggest adjusting print density based on the application of the 50:50 ratio of detected black and white peak values as a metric criterion. Instead, the 50:50 ratio disclosed by Yamaguchi et al. is used in the analysis of a decoded image based on a histogram of the density values of the decoded image. In addition, Yamaguchi et al. fails to teach or suggest adjusting print density wherein the applied metric criterion is relative height of a dark modal peak to that of a light modal peak to determine degree of adjustment of the print density, as recited in Claim 10. The image decoding

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disclosed by Yamaguchi et al. pertains to the operation of an image processing device, but does not pertain to the adjustment of print density based on metric criteria.

With regard to the rejection of Claims 18, 19 and 21, the Official Action correctly notes that Claims 18, 19 and 21 are apparatus claims that correspond to the method Claims 7, 8 and 10. However, the Official Action incorrectly concludes that the combined disclosure of Anderson et al. in view of Yang et al., and further in view of Yamaguchi et al., renders obvious Claims 18, 19 and 21. As discussed above, Anderson et al. in view of Yang et al. fail to teach or suggest "a processor, connected to the sensor, for calculating statistical metrics of histograms of the pixel values, applying metric criteria against the statistical metrics, and adjusting print density based upon the application of the metric criteria" as recited in independent Claim 11. In addition, Yamaguchi et al. fails to teach or suggest the adjustment of print density based on the metric criteria recited in Claims 18, 19 and 21. Therefore, the combined disclosure of Anderson et al. in view of Yang et al., and further in view of Yamaguchi et al., fails to render obvious Claims 18, 19 and 21. The Examiner is, therefore, respectfully requested to withdraw the rejections of Claims 7, 8, 10, 18, 19 and 21 and to allow these claims.

Rejection of Claims 9 and 20 under 35 U.S.C. § 103(a)

The Official Action also sets forth a rejection of Claims 9 and 20 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the disclosure contained in Anderson et al. in view of Yang et al. as applied to Claims 1 and 11, and further in view of the disclosure contained in U.S. Patent 4,656,665 to Pennebaker. This rejection is respectfully traversed because Anderson et al. in view of Yang et al., and further in view of Pennebaker, fail to teach or suggest the invention set forth in Claims 9 and 20.

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At least for the reasons set forth above, Anderson et al. in view of Yang et al. fail to teach or suggest all of the features of allowable independent Claims 1 and 11.

With regard to the rejection of Claims 9 and 20, the Official Action correctly notes that Anderson et al. in view of Yang et al. fail to teach or suggest a step of adjusting print density to a visual dark threshold determined as a median of pixel values when a single dark mode remains in a histogram. However, the Official Action incorrectly notes that line 58 of column 2 through line 61 of column 3, and Figure 1, of Pennebaker discloses threshold values for adjusting density values based on a determination of a median of pixels in a single mode. The cited passage does not pertain to adjusting print density to a visual dark threshold, as recited in Claims 9 and 20. Instead, the cited passage discusses generating a histogram of a graphics image from a scanned document, wherein the histogram provides a distribution of pixel number at each intensity of the graphics image. Pennebaker fails to teach or suggest using the histogram for adjusting print density. Thus, the reliance on this cited passage to somehow conclude that a prima facie case of obviousness has been achieved is improper. For at least these reasons, the Official Action incorrectly concludes that the disclosure of Pennebaker renders obvious Claim 9 and Claim 20. The Examiner is, therefore, respectfully requested to withdraw the rejections of Claims 9 and 20 and to allow these claims.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below.

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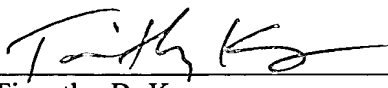
Please grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

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Dated: February 18, 2005

By



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